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A New Species of Scorpion of the Vejovidae: Paruroctonus[1] mesaensis

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Living specimens of *Paruroctonus mesaensis* have uniformly very pale yellow cauda, appendages and carapace. The preabdomen appears somewhat darker—an effect, in the main, produced by the darkish internal organs showing through the more or less translucent, dorsal exoskeleton. Because of this yellowish color and the rather long, slender body, the layman has often mistaken this scorpion for *Centruroides sculpturatus* Ewing, the Southwests' lethal scorpion. It is obvious that the fancied resemblance is superficial since they belong to different families—*C. sculpturatus* to the Buthidae, *P. mesaensis* to the Vejovidae. In addition to this, the sting of *C. sculpturatus* has proven lethal to children in good health up to the age 16 years, while the most severe reaction observed from *P. mesaensis* has been rather pronounced, non-ecchymotic but very painful swelling at the site of the sting.

Holotype. An adult female, A.S. No. 693.6, secured March 13, 1947, under a small slab of broken concrete in the city dump northwest of Mesa, Arizona. Soil sandy, as in other areas from which this species has been taken. Holotype collected by Floyd Parrat and I. F. Nichols.

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[1] Werner offered *Paruroctonus,* in *Klassen u. Ordnungen des Tierreichs* 8(2): 283, Jan. 1934 for *N. N. Uroctonoides* Hoffmann, *Anales del Instituto de Biologica* 2(4): 405, 1931 *nec* Chamberlin, *Mus. Sci. Bull. Brooklyn* 3(2): 35–44, 1920. Mello-Leitão in *Ann. Acad. Bras. Sci. Rio* 6(2): 75–82, June 30, 1934, offered *Hoffmanniellus.* Werner offer accepted because of prior date.

Description of Holotype: Carapace. Uniform light yellow with crescent of dark pigment on median periphery of each eye. Some living specimens with entire median ocular tubercle permeated by black pigment; others with diffuse area of brown pigment in the interocular triangle. Condition of holotype seems most common. Interocular triangle sparsely covered with coarse granules which become larger and more abundant posteriad. Lateral eyes three, which form approximately an angle of 120 degrees. Median ocular tubercle prominent. Median groove begins as a broad depression on extreme anterior border, extends as a shallow groove over ocular tubercle and ends as narrow pit-like furrow and then bifurcates at right angles into two shallower depressions on most posteriad margin.

Preabdomen: All segments covered with fine granulations. Segments 1 and 2 with few large granules scattered on extreme posterior and lateral margins. Large granules scattered over posterior half of segments 3 through 6. Large granules of segment 7 primarily on ridges of four lateral keels. Intercarinal spaces with scattered large granules. Median keel as only indistinct vestige on segments 1 and 2, becoming larger on other segments as it travels posteriad but never becoming a prominent structure and extending across only posterior half of each segment with exception of 7th where its greatest prominence is at midway point. Large, lateral granules of last segment denticulate and located on lateral edge of shelf-like lateral protrusion. Ventral abdominal surface free of large granules except for extreme marginal, denticulate granules and large granules forming two lateral keels on 7th segment. Second pair of lateral keels represented distad by a few granules. Intercarinal spaces of 7th segment with very few large and small granules. Ventral surface of other segments appears very finely punctate rather than smooth and shiny. Stigma narrow-elongate. Sternum sides sub-parallel; with very deep median furrow in posterior half; anterior third with large granules. Genital operculum partially divided into two separate halves. Pectines with more than 16 subcircular, vaulted middle-lamellae; fulcra moderate sized, teeth: 23/23. Some with 21 pectinal teeth. Most proximal tooth a distance equal to 9 teeth from point of attachment of pecten. Densely covered with short bristles on entire ventral surface except teeth.

Postabdomen: Very slender. All caudal segments longer than wide. Segment IV shorter than carapace: ratio 1.10. Segments I–IV ventrally quite hirsute with moderately long bristles.

Dorsal keels: Coarsely granular on segments I, II, and III; sub-denticulate granules on IV. Large rounded granules on segment V.

Superior lateral keels: Like dorsal keels but incomplete on segment V. Present on 0.4 of proximal end of segment and represented by moderate sized granules.

Median lateral keels: Coarsely granular on segment I; represented by 4 or 5 large granules at distal end of segment II, and by 3 large granules at distal end of segment III; lacking on segments IV and V.

Inferior lateral keels: Coarsely granular on segment I; prominent on segment II but not distinctly granular; granules definite on segment III and large well developed granules on segments IV and V.

Median ventral keels: Not prominent and without granules on segment I; distinct but smooth on II and III; with large granules on IV and on V represented by one distinct keel with large granules.

Intercarinal spaces: Few large granules on dorsal and dorsolateral regions of segment I through III, lacking on segment IV and sparsely represented on inferior surface of segment V.

Telson: Elongated, tear-drop in shape and smooth with few large bristles. Two large bristles located ventrally at base of aculeus. Lighter in color than other segments. Aculeus slightly more than ⅓ length of telson.

Chelicera: With (fig. 1) 5 more or less truncated, uniform-sized teeth on inferior border of movable finger. These teeth vary in number from 2 to 5, sometimes several may be united to form a single very wide tooth. Two reddish, tubercle-like protuberances on inferior border of fixed finger. Some with 3 such protuberances, which are sometimes denticulate.

Pedipalps: Chela: Hand broader than thick. All dorsal keels well developed and covered with moderately large granules. Lateral keels with more and larger granules. Inferior and median surface with many large granules. Cutting edges of both moveable and fixed fingers moderately scalloped with ridges of one fitting into valleys of other. Cutting edge of both fingers with six clusters of supernumerary teeth linearly arranged with large tooth separating each of the six clusters. Each large tooth flanked medially by large tooth except (on the movable finger) distad where there are two large flanking teeth (seven in all). Fixed finger has only five flanking large teeth plus one large flanking terminal tooth. Distance between median large teeth and lateral teeth increases progressively distad. A large bristle immediately posterior to each flanking large tooth except the two most distal ones.

Brachium: With distinct and granular anterior and posterior inferior margins. 13–14 trichobothria on posterior surface.

Humerus: With only anterior inferior margin distinct and granular. Inferior surface has proximally a cluster of 8–11 moderately large granules.

Walking legs: Long tarsal claws; well developed unguicular spine; exterior and interior pedal spurs. Single row of bristles on ventral median ridge of tarsus with two larger bristles at distal end of row forming a V and a cluster of small bristles at proximal end of row. A row of very long, stout bristles on exterior margin of protarsus and tibia of first three pair of legs.

ALLOTYPE. An adult male, A.S. No. 361.26, collected September 14, 1939 under board in city dump northwest of Mesa, Arizona, by H. L. Stahnke.

DESCRIPTION OF ALLOTYPE. Carapace: Color same as female. Many large granules in interocular triangle. Greater concentration of large granules posteriad. Few scattered large granules laterally. Many fine granules throughout. Lateral eyes, ocular tubercle, median groove and keels same as female.

Preabdomen: Granulations same as female. Median and four lateral keels somewhat more pronounced than in female. Intercarinal spaces, lateral large granules and ventral surface like that of female except for intercarinal spaces on 7th which have numerous small and large granules. Sternum like that of female. Genital papillae well developed and protrude some distance from edge of genital operculum which is divided. Pectines with more than 20 subcircular, vaulted middle lamellae. Teeth: 32/32. Some with 39 pectinal teeth. Most proximal tooth a distance of about 6 teeth from point of attachment of pectines.

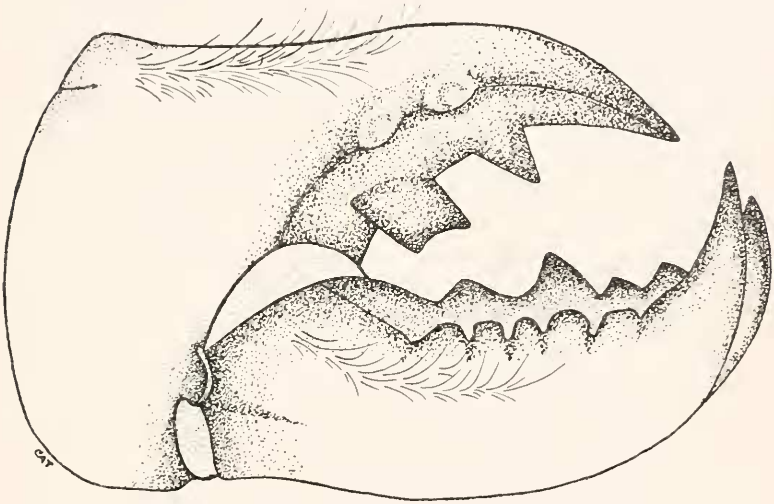

FIG. 1. Chelicera of *Paruroctonus mesaensis* n. sp. [C. Templeton, *del.*]

Postabdomen: General shape like female. All segments longer in proportion to width. Segment IV longer than carapace: ratio 0.85. Segments I, II, and III with keels like those of female and intercarinal spaces densely covered with fine granules and few isolated granules except on inferior surface. Segments IV and V keels same as on female with intercarinal spaces densely covered with fine granules. Telson similar to that of female.

Pedipalps: Chela: Hand not quite as broad as on female. Cutting edge of fixed and movable finger denticulated as in female but scallops are deeper, especially at proximal end. Keels

Paruroctonus mesaensis

Table of Measurements in mm., and Ratios

	Females			Males		
	Holotype	Paratypes		Allotype	Paratypes	
	No. 693.6	No. 1248	No. 1154	No. 361.26	No. 1177	No. 57-323
Total length	60.68	60.86	59.79	63.40	60.56	64.64
Carapace length	7.56	8.12	7.42	6.86	7.00	7.14
Carapace width	6.58	7.56	6.86	6.23	6.44	6.72
Mesosoma	15.35	12.70	13.35	13.00	11.70	14.80
Metasoma	37.77	40.04	39.02	43.54	41.86	42.70
*Ratios:						
CL/TL	0.13	0.13	0.12	0.11	0.12	0.11
CL/MtL	0.20	0.20	0.19	0.16	0.17	0.17
MtL/TL	0.62	0.66	0.65	0.69	0.69	0.66
PW/PT	1.33	1.27	1.30	1.24	1.25	1.32
CL/IVL	1.10	1.14	1.06	.85	.90	.88
CL/VL	0.87	0.88	0.83	0.68	0.72	0.73
IL/IW	1.21	1.24	1.27	1.42	1.38	1.37
Pecten teeth	23/23	24/25	23/23	32/32	32/32	38/39

* Abbreviations: CL = carapace length
TL = Total length
MtL = Metasoma length
VL = Length caudal segment V
IL = Length caudal segment I
IW = Width caudal segment I
IVL = Length caudal segment IV
PW = width of hand of chela
PT = thickness of hand of chela

Paratypes	Sex	Date Collected	Locality	Collector
1248	female	8/27/52	Tempe, Ariz.	Kenneth Ziegler
1154	female	8/22/51	Tempe, Airz.	Klonda Bowers
1177	male	11/15/51	Tempe, Ariz.	H. L. Stahnke
57-233	male	4/30/57	Borrego Springs, California	Jim Elliott

and granulations on dorsal surface more pronounced than on female. Intercarinal spaces densely covered with fine granules. Brachium and humerus same as female except that large granules in medial area of posterior surface lacking. Brachium stouter than in female. Chelicera and walking legs similar to those of female.

P. mesaensis differs principally from *P. gracilior* (Hoffman) as follows:[2] *P. mesaensis* is uniformly light yellow whereas *P. gracilior* has a crescent-shaped spot in interocular triangle similar to *Hadrurus hirsutus.* Also, the dorsal plates of the abdomen show widespread dark spots on both sides of the middle line, which give a blackish tint to the plates. Pectinal teeth of *P. mesaensis* 32/32; *P. gracilior,* 26/28. The fourth caudal segment of the male *P. mesaensis* is considerably longer than carapace, while in *P. gracilior* this segment is a little shorter than carapace.

On *P. mesaensis* the teeth on the ventral surface of the movable finger truncated and uniform in size; *P. gracilior* has a large basal truncated tooth and 4 smaller teeth. Caudal keels more coarsely granular in general on *P. mesaensis* than on *P. gracilior.*

The Occurrence of Salmacia longipulvilli in the Hawaiian Islands (Diptera: Larvaevoridae)

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The parasitic fly *Salmacia longipulvilli* (Tothill) has not been recorded in the Hawaiian entomological literature, although it appears to be an immigrant species from America. It was present in the Hawaiian Islands as early as 1929. Since *Salmacia longipulvilli* is similar in size to *Chaetogaedia monticola* (Bigot), the former has apparently been confused with *monticola* and remained undetected in collections.

These two species may be separated on a readily visible structural character of the head: *S. longipulvilli* has the facial ridges bare (except for several bristles immediately above and in as-

[2] Hoffman described only the male of the species.

[1] I should like to thank J. L. Gressitt, H. J. Reinhard, C. W. Sabrosky, G. E. Shewell, Alan Stone, and P. W. Weber for their aid and suggestions in this study.